

and vertical directions, respectively corresponding to said color filters;

a plurality of vertical [charge transfer] read-out units provided [respectively corresponding to the columns of said] for every plurality of pixels in the vertical direction, for [transferring electric charges] reading out signals from said pixels in the vertical direction;

a horizontal [charge transfer] read-out unit [connected to the ends of said vertical charge transfer units,] for [transferring the electric charges, transferred] reading out sequentially the signals from said plurality of vertical [charge transfer] read-out units[,] in the horizontal direction; [and]

an output unit for [converting the signal charges transferred] outputting sequentially the signals from said horizontal [charge transfer] read-out unit [into an image signal and outputting said image signal

wherein said color filter array comprises an array, in the vertical direction, of a plural units of color filter groups wherein each unit comprises 8 rows in which an odd-numbered row is composed of an alternate array of a first color filter and a second color filter in a predetermined

order while an even-numbered row is composed of an alternate array of a third color filter and a fourth color filter in a predetermined order]; and

[the image signal corresponding to one row, within the image signal obtained from said image pickup element in a single image pickup operation, is outputted as a line-sequential color difference signal of said pixels of 4 rows in the vertical direction]

control means for dividing said plural pixels on the unit basis of predetermined number of lines which include a plurality of first lines and a plurality of second lines, and thinning out the signals of the pixels of said plurality of second lines or adding the signals of the pixels of said plurality of first lines and the signals of the pixels of said plurality of second lines, thereby controlling the pixels of said predetermined number of lines so as to generate one kind of color difference signal.

4. An image pickup device comprising an image pickup element for picking up an image of an object, said image pickup comprising:

a color filter array comprising the color filters arranged in the horizontal and vertical directions,

through which the image of the object is picked up by said image pickup element;

plural pixels constituting photoelectric converting elements arranged in the horizontal and vertical directions, respectively corresponding to said color filters;

a plurality of vertical charge transfer units provided respectively corresponding to the columns of said pixels in the vertical direction, for transferring electric charges from said pixels in the vertical direction;

a horizontal charge transfer unit connected to the ends of said vertical charge transfer units, for transferring the electric charges, transferred from said vertical charge transfer units, in the horizontal direction;

an output unit for converting the signal charges transferred from said horizontal charge transfer unit into an image signal and outputting said image signal

wherein said color filter array comprises an array, in the vertical direction, of a plural units of color filter groups wherein each unit comprises 8 rows in which an odd-numbered row is composed of an alternate array of a first color filter and a second color filter in a predetermined order while an even-numbered row is composed of an alternate

array of a third color filter and a fourth color filter in a predetermined order;

the image signal corresponding to one row,
within the image signal obtained from said image pickup
element in a single image pickup operation, is outputted as a
line-sequential color difference signal of said pixels of 4
rows in the vertical direction

[An image pickup device according to claim 3], wherein:

said color filter at a $(4n+1)$ th row and an odd-numbered column is same as the color filter at a $(4n+3)$ th row and an even-numbered column;

said color filter at a $(4n+2)$ th row and an odd-numbered column is same as the color filter at a $(4n+4)$ th row and an even-numbered column;

said color filter at a $(4n+1)$ th row and an even-numbered column is same as the color filter at a $(4n+3)$ th row and an odd-numbered column; [and]

said color filter at a $(4n+2)$ th row and an even-numbered column is same as the color filter at a $(4n+4)$ th row and an odd-numbered column; and

n being an integer equal to or larger than 0.

New Claims 35-36 have been added.

--35. An image pickup device according to Claim 3, wherein said control means effects the control of the pixels so as to generate alternately different kinds of color difference signals on the predetermined number of lines basis.

36. An image pickup device according to Claim 3, further comprising a signal processing circuit which subjects the signals output from said output unit, to an image processing, and an image display unit which display image information from said signal processing circuit.--

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